GYNANDROMORPHISM IN THE RED IMPORTED FIRE ANT, *SOLENOPSIS INVICTA* BUREN (HYMENOPTERA: FORMICIDAE)[1,2]

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ABSTRACT: Gynandromorphism in the red imported fire ant, *Solenopsis invicta* Buren (Hymenoptera: Formicidae) – a gynandromorphous fire ant was collected from a polygynous colony in Texas. It has a male head and female petioles and gaster, but the alitrunk shows a combination of characteristics of both sexes.

DESCRIPTORS: Gynandromorph; *Solenopsis invicta;* Polygyny.

In ants, as in many other Hymenoptera, all the fertilized eggs become females (both queens and workers) while the unfertilized eggs become males. During certain times of the year both male and female alates are produced in a mature ant colony although the mechanism by which the queen controls the fertilization of her eggs is still unknown.

In April 1974 we collected 128 males (including pupae and alates) of *S. invicta* from one polygynous colony in College Station, Texas. One of these specimens turned out to be a gynandromorph (Fig. 1). The head of this specimen is decisively that of the male (cf. Buren 1972 for morphological characters of both sexes). It is also clear that the petioles and the gaster are all those of the female. However, the alitrunk shows a combination of characteristics of both sexes. Although structurally it is a female alitrunk as shown by the robust legs, the hind wings, and the striation, it has the characteristic concolorous black of the male.

Gynandromorphs have been reported in 22 genera of ants (Buschinger and Stoewesand 1971, Donisthorpe 1929, Wheeler 1931 and 1937). The origin of gynandromorphs has been studied both genetically and cytologically in several groups of insects. In *Drosophila* they result from the loss of the X-chromosomes during early cleavage in the female (Morgan and Bridge 1919). Whiting (1943) shows that in *Habrobracon* they arise from androgenesis. In honeybees, a combination of androgenesis and zygogenesis is the cause of sex mosaicism (Rothenbuhler et al. 1952). Wheeler (1903) suggested several possible causes of gynandromorphism in ants. However, due to the difficulty in gamete manipulation, no genetical or cytological data have yet been secured in ants.

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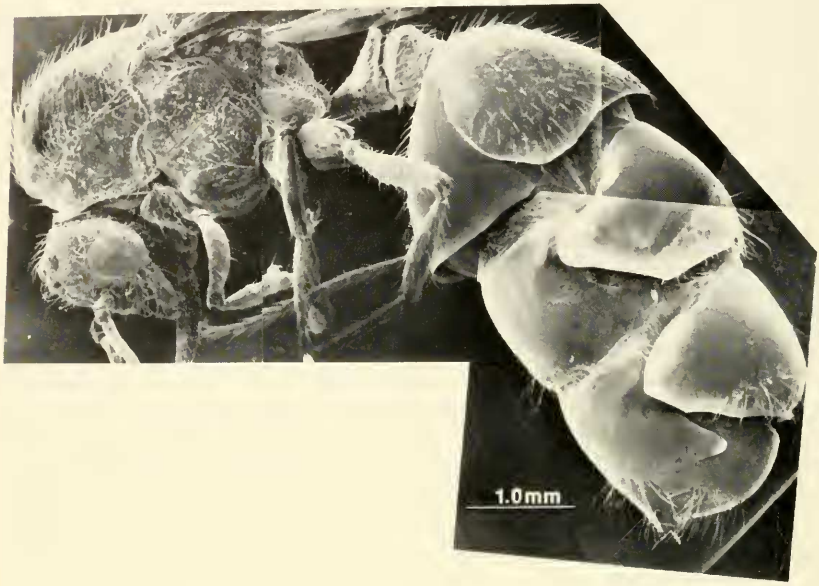

Fig. 1. Scanning electron micrograph of a gynandromorphous fire ant.

The pictured specimen has been placed in the insect collection of the Department of Entomology, Texas A&M University.

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